

News Release

Capstone Award finalist project offers potential solution for danger of children left alone in cars

EDMONTON, Aug. 12, 2019 - The dangers associated with leaving children unattended in cars during hot weather is an issue all parents face. A potential solution for this problem in the form of a promising child car seat prototype earned three young biomedical engineering technology (BMET) graduates the honour of being finalists in the Association of Science and Engineering Technology Professionals of Alberta (ASET) annual Capstone Project of the Year Awards.

The Guardian Angel Car Seat System was developed by Jennifer Pettem, Emer Burke and Rachel Beaudette - ASET members and NAIT students at the time - to give parents peace of mind in the rare event of an oversight or poor judgement that results in a child being left unattended for a few minutes. The car seat is designed to continuously monitor a child to prevent serious harm or injury.

“This ASET Capstone Project of the Year Award finalist is a sterling example of the remarkable innovation we see demonstrated by the next generation of engineering technology professionals. And this project, in particular, pragmatically addresses the needs of parents for whom the safety of their children is paramount,” said ASET CEO Barry Cavanaugh.

The Capstone Awards were established by ASET in 2017 in response to overwhelming member interest in back-to-school stories about Capstone projects undertaken by teams of engineering technology students from NAIT, SAIT, Red Deer College, and Lethbridge College as part of their end-of-program requirements.

The project idea was inspired by Burke who gave birth to her daughter between her first and second year at NAIT and was keenly aware of the tragic consequences of leaving children alone in vehicles on warm days. The team decided to create a device that would prevent this from happening and also enable parents and caregivers who are driving to easily monitor a child in a car seat.

“As graduates of the biomedical engineering technology program at NAIT, we have an interest in medical devices that support patient care. This solution is a perfect example of what the biomedical engineering technology field represents: safety, security and well-being for the child, and peace of mind for the parent,” said Pettem.

The in-seat system connects with an Android app through Bluetooth, monitoring a child in the car seat (including body temperature via the temple) and proximity to her or his caregiver, and ambient temperature surrounding the car seat. The app displays these readings in real time, and can also indicate whether the child is actually in the car seat.

If the child's temperature exceeds normal parameters, an audible alarm is accompanied by a warning message on the Android phone. If, for instance, the child is in the care of someone other than a parent (e.g. a nanny), the app can send a text message to the parents, notifying them that the child has been left unattended. The car seat is also equipped with an LED strip that provides a visible readout of the child's temperature, allowing a parent or caregiver to focus on the road without losing track of the child's status.

About the Capstone Project of the Year Award finalist team

Jennifer Pettem TT, biomedical engineering technologist, Medicine Hat, Alta.

Pettem always had an interest in working in the medical field, but didn't want to be directly involved with patients. Despite limited electronics experience, BMET proved the right choice for her, confirmed by her co-op experiences where she worked on infant warmers and monitoring systems. "Working with experienced technologists during summer co-op programs allowed me to learn about the variety of equipment hospitals use," said Pettem.

Rachel Beaudette, biomedical engineering technologist, Regina, Sask.

Beaudette moved from Brandon, Man. to Edmonton to follow her dream of working in BMET. "From a young age I was fascinated with robots. I loved taking them apart, fixing them, and discovering what made them tick. In high school, I enrolled in electronics to see what it was all about, and fell in love with the field so much that I wanted to pursue it as a career," said Beaudette.

Emer Burke, biomedical technologist, Kingston, Ont.

After a decade-long career as a registered massage therapist, Burke recognized the physical toll it was taking on her and made a dramatic career transition to BMET. "Over the years, I had discovered that I enjoy building things and figuring out how they function. When deciding on a new career path, I knew I wanted to stay in the healthcare industry but I wanted to move away from direct patient care. Working with medical devices sounded so interesting to me. After completing my practicum at the University of Alberta Hospital, it was abundantly clear that this is the career for me," said Burke.

About ASET

In addition to handing out the Capstone Project of the Year Award to deserving engineering technology students, the [ASET Education and Scholarship Foundation](#) provides scholarships, bursaries and educational funding to enhance and support the education of students pursuing engineering technology studies.

[ASET](#) is the professional self-regulatory organization for engineering technologists and technicians in Alberta. ASET currently represents over 18,000 members, including full-time technology students, recent graduates and fully certified members in 21 disciplines and some 124 occupations across a multitude of industries.

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